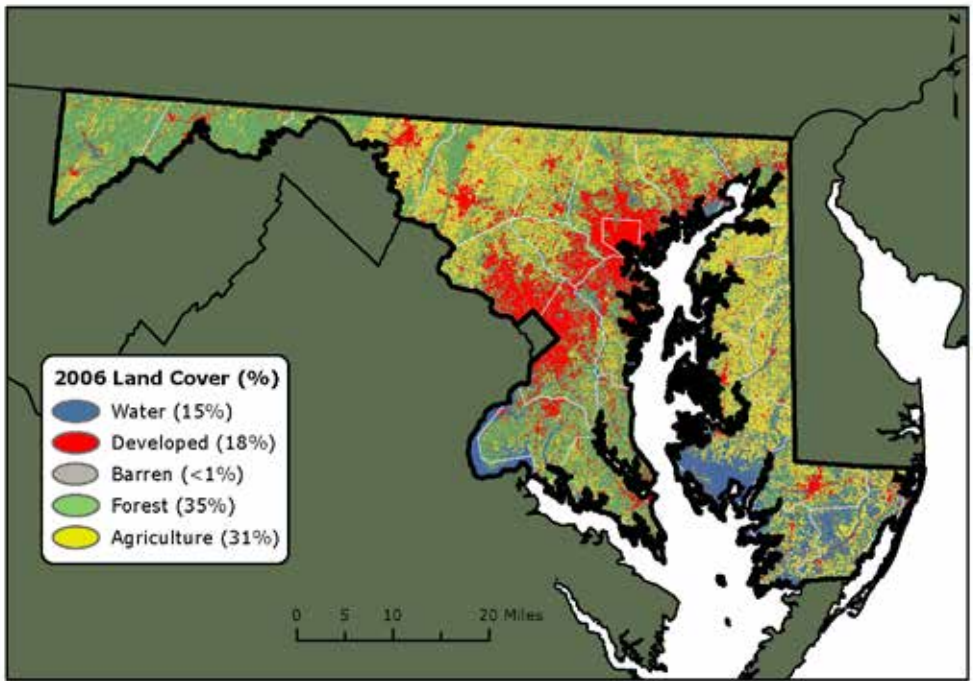
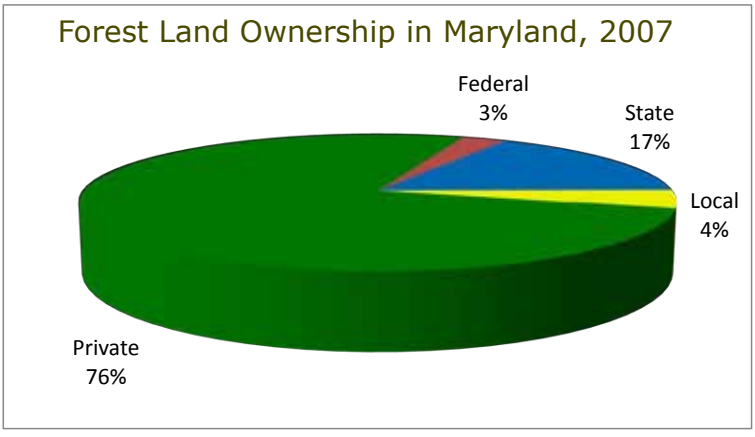
2013 Forest Health highlights

MARYLAND

The Resource

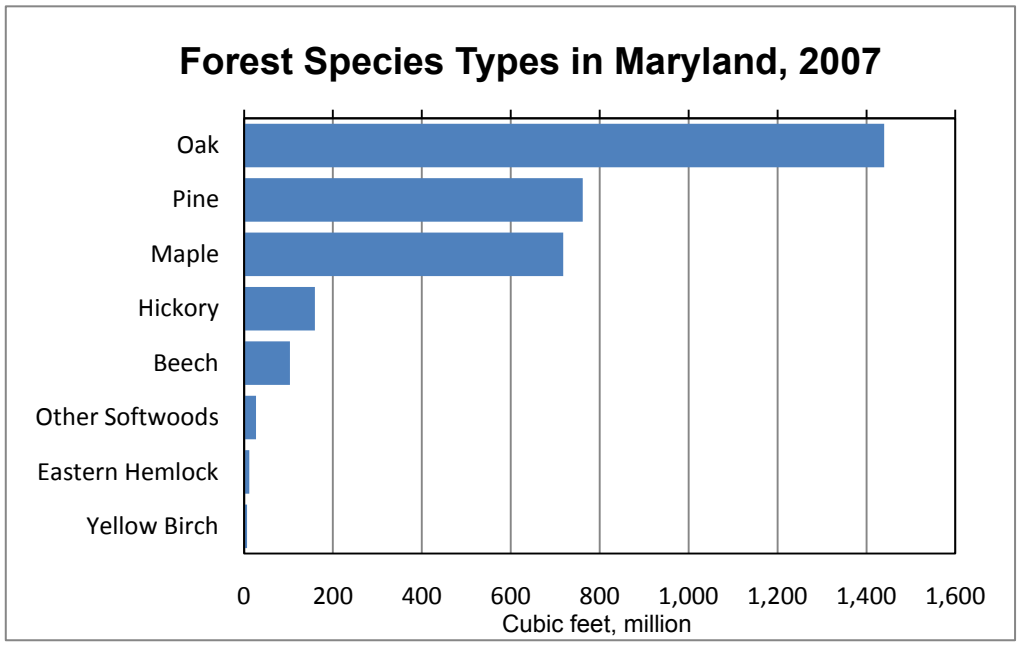
Maryland occupies a land area of 6,255,800 acres. Forest land comprises 2,565,800 acres of which nearly 76 percent is privately owned. Healthy, productive forests are critical in urban and rural areas for soil conservation, clean air and water, wildlife habitat, outdoor recreation, and esthetics. The forest products industry is the largest employer in Allegany and Garrett Counties and the second largest employer on the Eastern Shore.





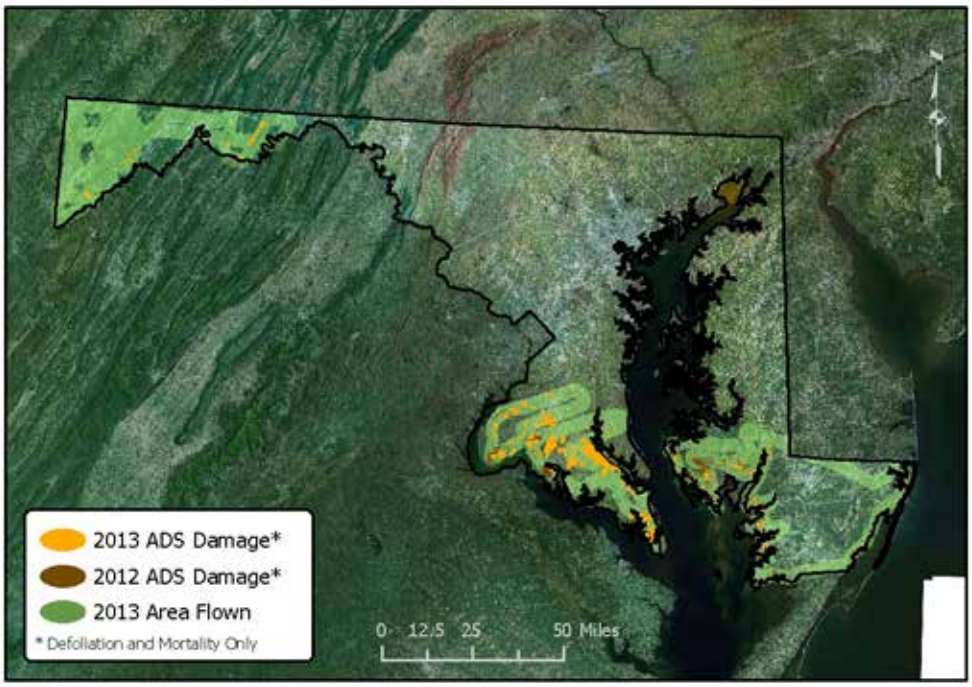
Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

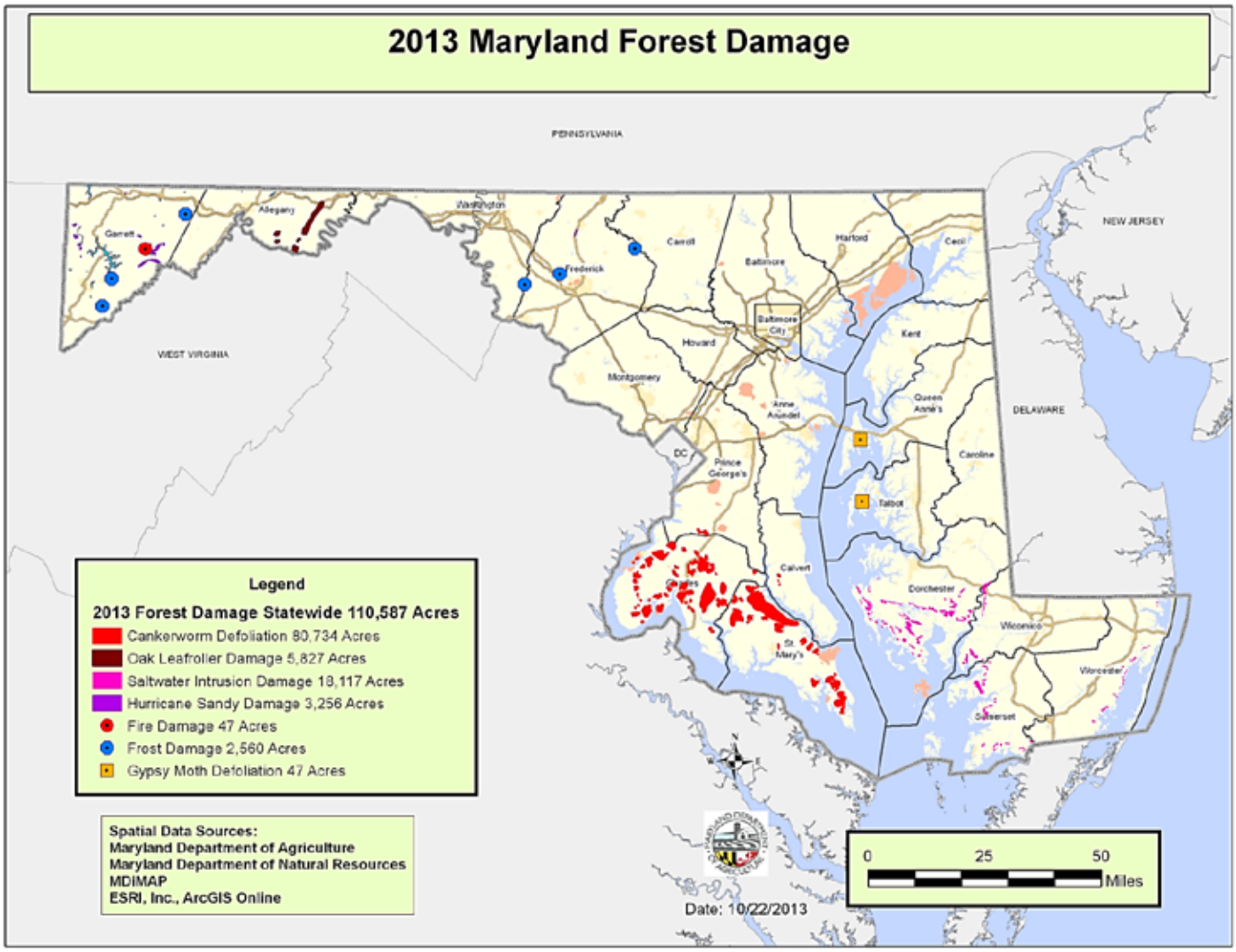


Aerial Surveys

The majority of the damage recorded in Maryland from aerial surveys in 2013 was from fall cankerworm (80,734 acres). Salt intrusion caused 18,117 acres of damage in Dorchester, Somerset, Wicomico, and Worcester Counties. In Allegany County, the oak leaf roller caused 5,827 acres of defoliation. Hurricane Sandy caused 3,256 acres of tree damage by toppling trees due to high winds and 36 inches of wet snow. Also recorded was 2,560 acres of damage primarily on oaks due to a late May frost.



This map delineates aerial detection survey (ADS) results for Maryland in 2013 and 2012.


2013 Maryland Forest Damage
PENNSYLVANIA
NEW JERSEY
DELAWARE
WEST VIRGINIA
Garrett
Allegany
Washington
Frederick
Carroll
Baltimore
Harford
Cecil
Howard
Baltimore City
Kent
Montgomery
Anne Arundel
Queen Anne's
DC
Prince George's
Caroline
Talbot
Calvert
Charles
St. Mary's
Dorchester
Wicomico
Worcester
Somerset
Legend
2013 Forest Damage Statewide 110,587 Acres
Cankerworm Defoliation 80,734 Acres
Oak Leafroller Damage 5,827 Acres
Saltwater Intrusion Damage 18,117 Acres
Hurricane Sandy Damage 3,256 Acres
Fire Damage 47 Acres
Frost Damage 2,560 Acres
Gypsy Moth Defoliation 47 Acres
Spatial Data Sources:
Maryland Department of Agriculture
Maryland Department of Natural Resources
MDiMAP
ESRI, Inc., ArcGIS Online
0
25
50
Miles
Date: 10/22/2013

Forest Health Monitoring

The Forest Health Monitoring Program has two components: plot network and off-plot survey. The USDA Forest Service's Northcentral Station Forest Inventory and Analysis Staff administers the plot network in Maryland. The network is designed to monitor, assess, and report annually on changes in the long-term condition of trees, soils, lichens, and air quality in forests.

The Maryland Department of Agriculture conducts the off-plot survey. The objectives are delimiting, mapping, and reporting forest pest problems, to supplement the plot network. Aerial and ground surveys, data collection, and reporting are conducted in accordance with Forest Health Management standards for air operations and GIS.

Office of Plant Industries and Pest Management

Forest Pest Management Section

Gypsy Moth

The gypsy moth is the most serious threat to oak forests in the United States. In Maryland the first egg masses were detected in 1971, and the first extensive defoliation occurred in 1981.

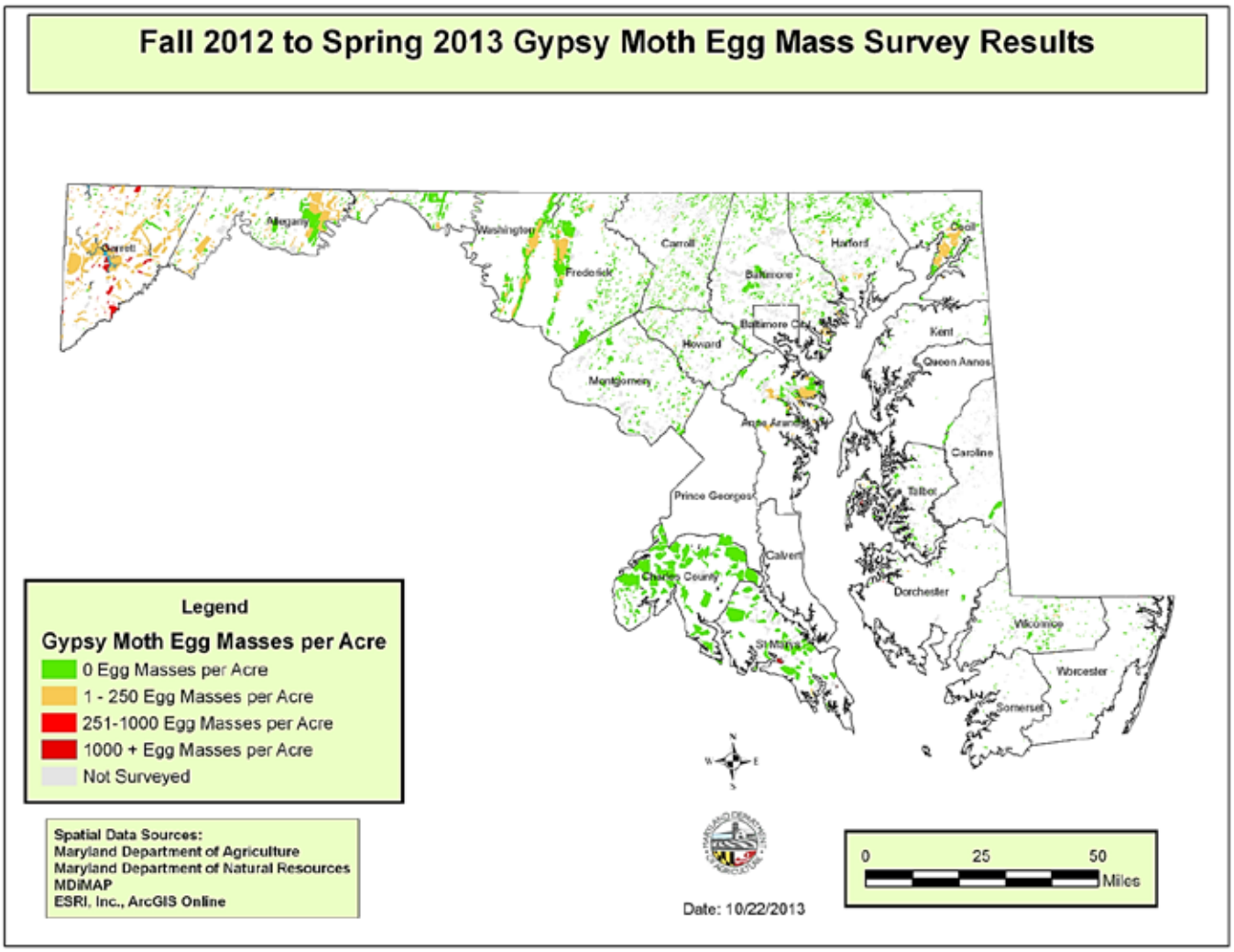
*Gypsy moth (Lymantria dispar (*Linnaeus*)), USDA APHIS PPQ Archive, UGA1148049, forestryimages.org.*

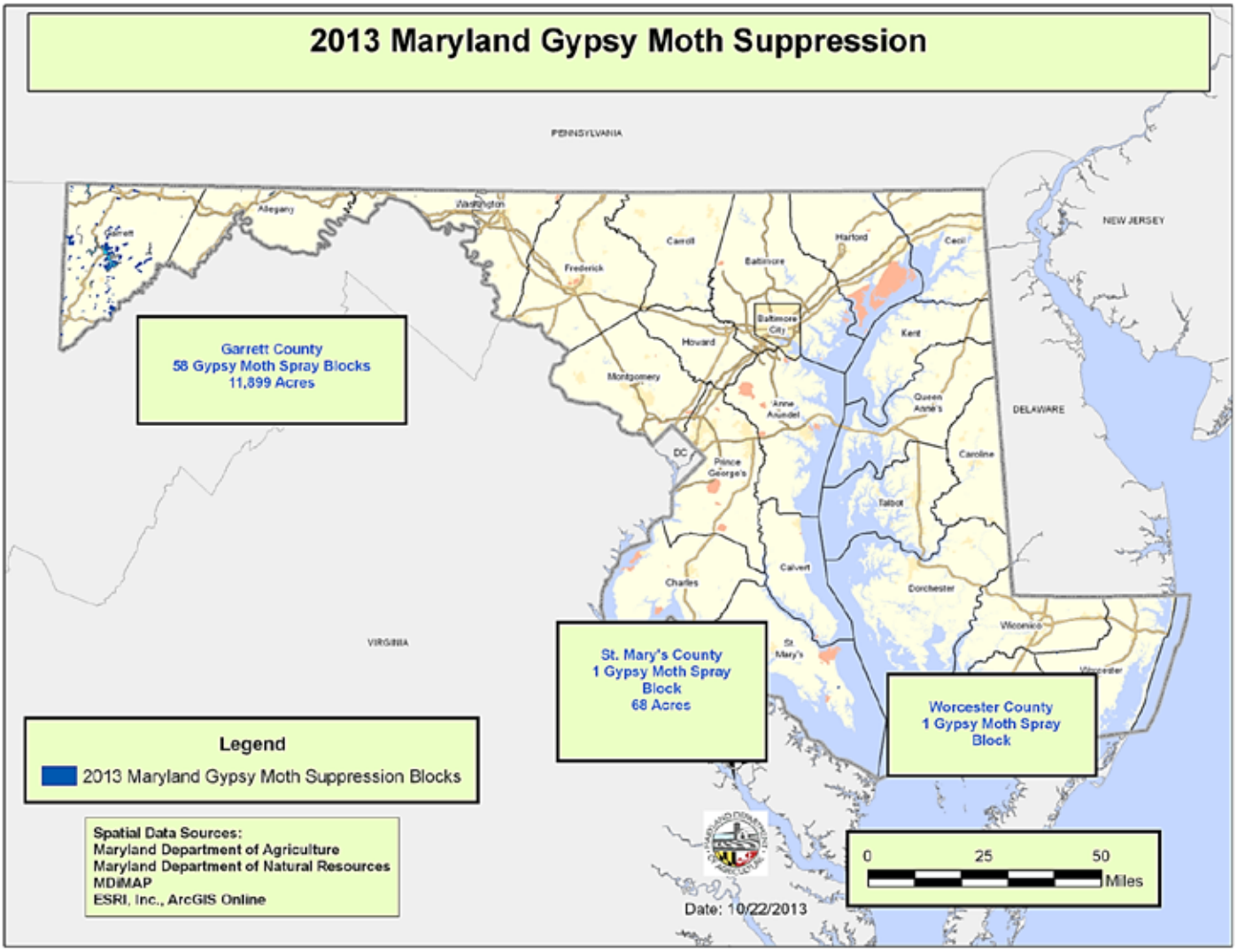
Each fall and winter, Maryland Department of Agriculture conducts an extensive survey for gypsy moth egg masses to determine potential areas of defoliation. From August 2012 through March 2013, personnel conducted gypsy moth egg mass surveys on 527,837 acres of "high value" forested lands. High value forested sites include areas with development, recreational use, managed forest and wildlife resources, and other site conditions that render dieback and mortality to be economically and socially important. The survey results indicated that the current populations were sufficient to cause moderate to heavy defoliation on 12,404 acres of high value rural and urban forest in 2013. A table summarizing egg mass surveys, and a map showing survey results are provided.

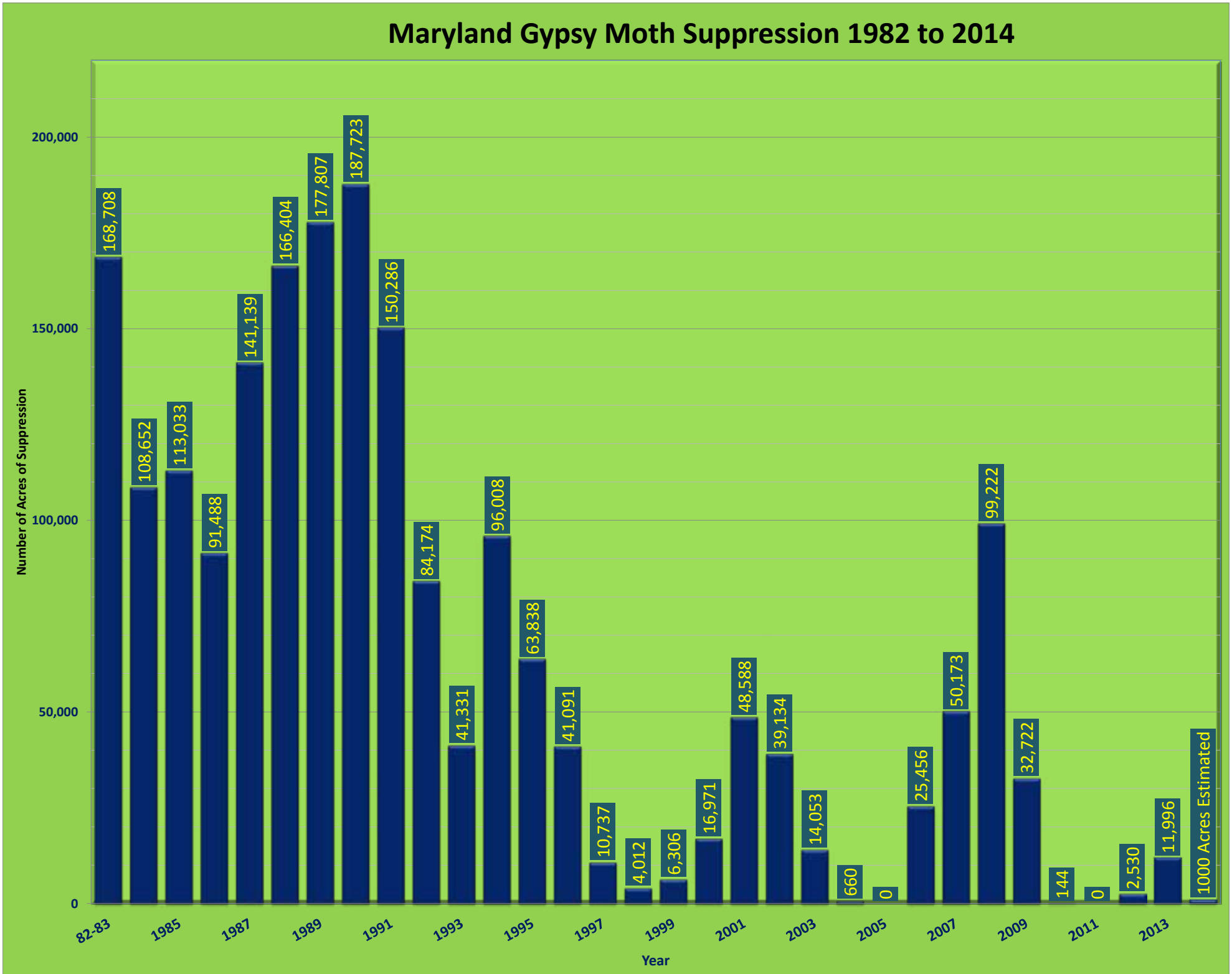
During May 3 – May 30, 2013, Maryland Department of Agriculture sprayed 11,996 acres in 61 spray blocks with the insecticide Foray 48B. All spray areas were in Garrett, St. Mary's, and Worcester Counties. A map showing suppression blocks is provided.

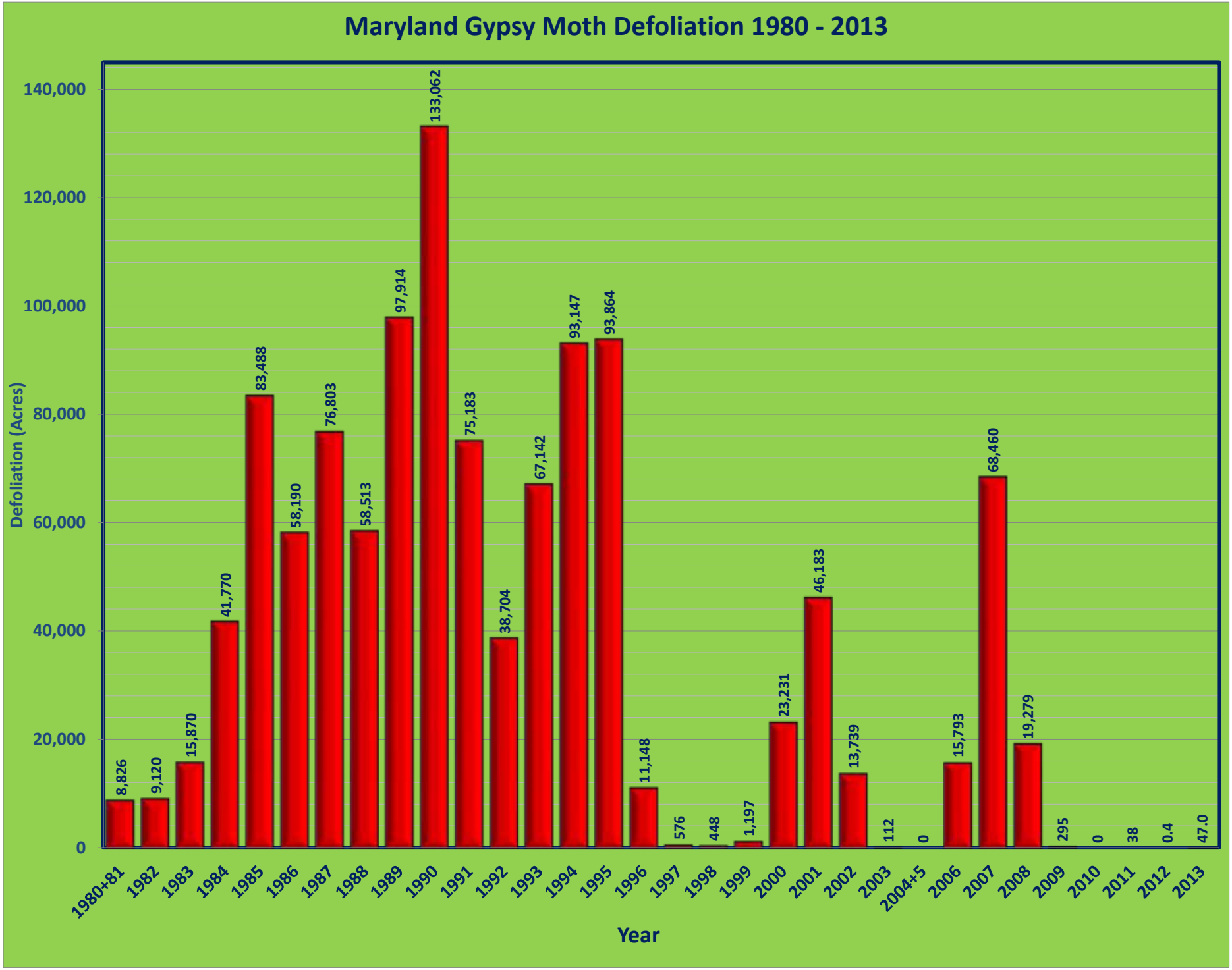
Charts showing historical defoliation and suppression information are provided for reference.

2012 - 2013 Maryland Gypsy Moth Egg Mass Survey Summary			
County	**Number of Blocks Surveyed**	**Number of Acres Surveyed**	**Number of Points Surveyed**
Anne Arundel	55	22,657	282
Allegany	180	52,789	1,068
Baltimore	225	33,167	774
Baltimore City	0	0	0
Carroll	293	22,451	747
Cecil	102	25,506	456
Charles	64	83,876	180
Caroline	6	3,848	26
Dorchester	32	2,799	86
Frederick	340	61,707	1,127
Garrett	256	69,549	1,569
Harford	150	26,546	548
Howard	109	10,526	368
Kent	15	1,746	30
Montgomery	188	20,561	585
St. Mary's	38	33,585	115
Somerset	10	711	33
Talbot	64	6,359	156
Washington East	76	24,236	386
Wicomico	123	9,063	250
Worcester	34	2,418	78
Washington West	73	13,737	368
TOTAL	**2,433**	**527,837**	**9,232**


Fall 2012 to Spring 2013 Gypsy Moth Egg Mass Survey Results
Garrett
Allegany
Washington
Frederick
Carroll
Harford
Cecil
Baltimore
Baltimore City
Howard
Montgomery
Kent
Queen Annes
Caroline
Talbot
Prince Georges
Calvert
Charles County
St Marys
Dorchester
Wicomico
Worcester
Somerset
Legend
Gypsy Moth Egg Masses per Acre
0 Egg Masses per Acre
1 - 250 Egg Masses per Acre
251-1000 Egg Masses per Acre
1000 + Egg Masses per Acre
Not Surveyed
Spatial Data Sources:
Maryland Department of Agriculture
Maryland Department of Natural Resources
MDiMAP
ESRI, Inc., ArcGIS Online
Date: 10/22/2013
0
25
50
Miles

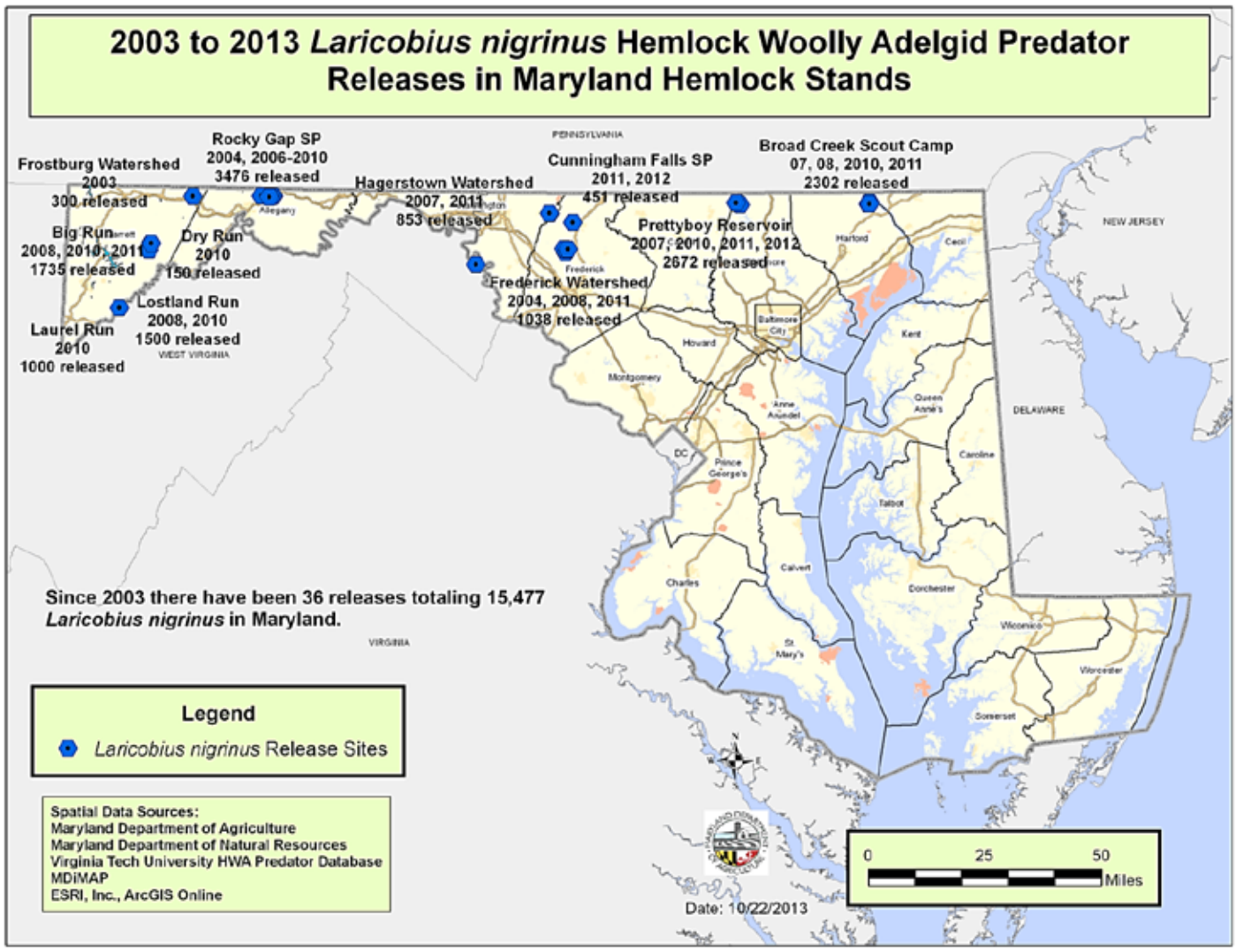

2013 Maryland Gypsy Moth Suppression
PENNSYLVANIA
NEW JERSEY
DELAWARE
VIRGINIA
Garrett
Allegany
Washington
Frederick
Carroll
Baltimore
Harford
Cecil
Baltimore City
Howard
Kent
Montgomery
Anne Arundel
Queen Anne's
DC
Prince George's
Caroline
Talbot
Calvert
Charles
Dorchester
Wicomico
St. Mary's
Worcester
Garrett County
58 Gypsy Moth Spray Blocks
11,899 Acres
St. Mary's County
1 Gypsy Moth Spray Block
68 Acres
Worcester County
1 Gypsy Moth Spray Block
Legend
2013 Maryland Gypsy Moth Suppression Blocks
Spatial Data Sources:
Maryland Department of Agriculture
Maryland Department of Natural Resources
MD iMAP
ESRI, Inc., ArcGIS Online
0
25
50
Miles
Date: 10/22/2013


Maryland Gypsy Moth Suppression 1982 to 2014
Number of Acres of Suppression
200,000
150,000
100,000
50,000
0
168,708
108,652
113,033
91,488
141,139
166,404
177,807
187,723
150,286
84,174
41,331
96,008
63,838
41,091
10,737
4,012
6,306
16,971
48,588
39,134
14,053
660
0
25,456
50,173
99,222
32,722
144
0
2,530
11,996
1000 Acres Estimated
82-83
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Year

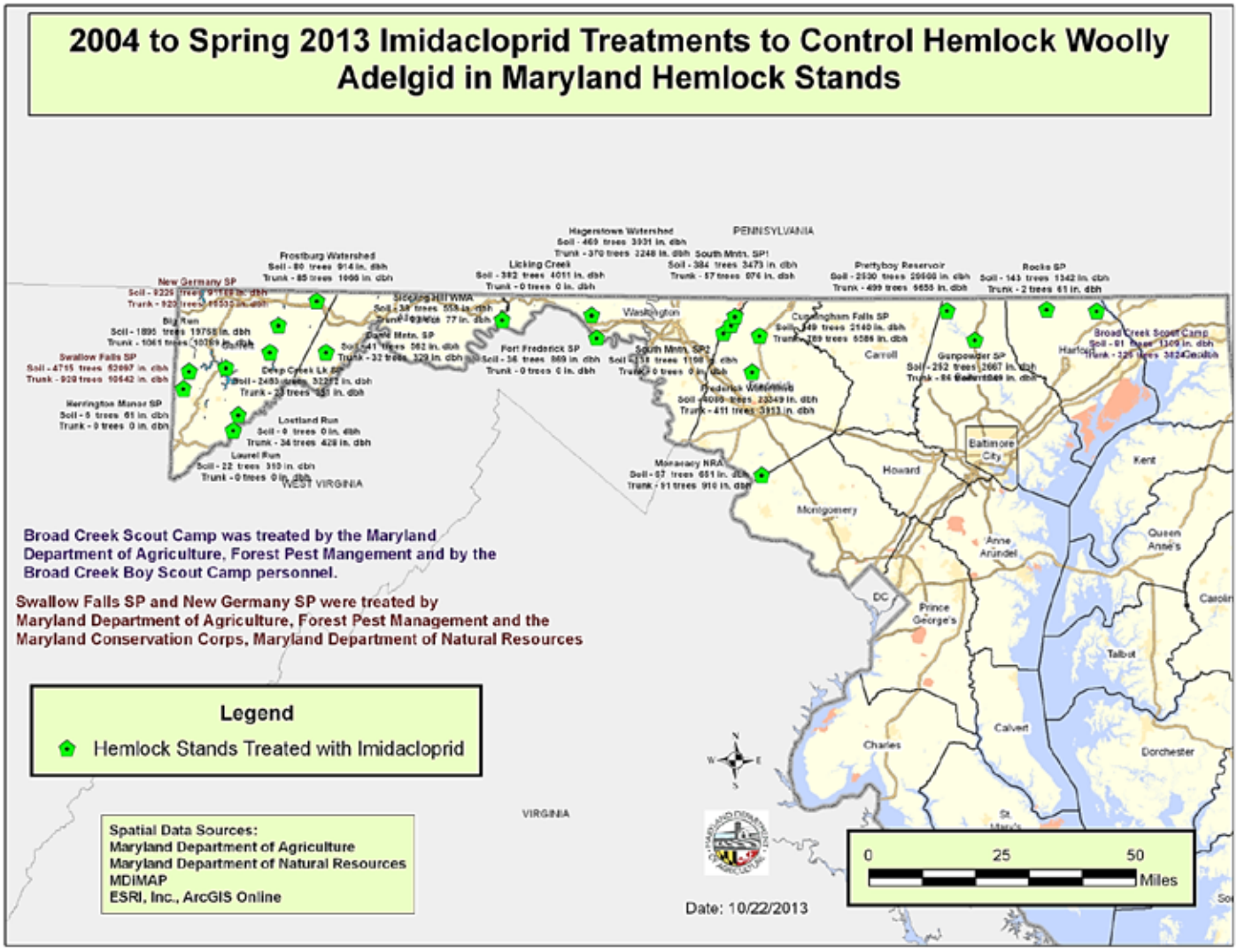

Maryland Gypsy Moth Defoliation 1980 - 2013
Defoliation (Acres)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
8,826
9,120
15,870
41,770
83,488
58,190
76,803
58,513
97,914
133,062
75,183
38,704
67,142
93,147
93,864
11,148
576
448
1,197
23,231
46,183
13,739
112
0
15,793
68,460
19,279
295
0
38
0.4
47.0
1980+81
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004+5
2006
2007
2008
2009
2010
2011
2012
2013
Year

Hemlock Woolly Adelgid (HWA)

HWA remains the major threat to the health of eastern hemlock. Infested hemlocks occur in the metropolitan area between Baltimore and Washington, DC, and in natural stands from Harford to Garrett Counties. *Laricobius nigrinis*, a predatory beetle of HWA, has been released in several areas since 2003.


2003 to 2013 Laricobius nigrinus Hemlock Woolly Adelgid Predator Releases in Maryland Hemlock Stands
Frostburg Watershed 2003 300 released
Rocky Gap SP 2004, 2006-2010 3476 released
Big Run 2008, 2010, 2011 1735 released
Dry Run 2010 150 released
Lostland Run 2008, 2010 1500 released
Laurel Run 2010 1000 released
Hagerstown Watershed 2007, 2011 853 released
Cunningham Falls SP 2011, 2012 451 released
Frederick Watershed 2004, 2008, 2011 1038 released
Prettyboy Reservoir 2007, 2010, 2011, 2012 2672 released
Broad Creek Scout Camp 07, 08, 2010, 2011 2302 released
Since 2003 there have been 36 releases totaling 15,477 Laricobius nigrinus in Maryland.
Legend
Laricobius nigrinus Release Sites
Spatial Data Sources:
Maryland Department of Agriculture
Maryland Department of Natural Resources
Virginia Tech University HWA Predator Database
MDiMAP
ESRI, Inc., ArcGIS Online
0 25 50 Miles
Date: 10/22/2013

A joint task force of Maryland Department of Agriculture and the Maryland Department of Natural Resources addressed the multidisciplinary needs related to the HWA infestation. The task force prioritized more than 50 hemlock stands and selected them as the sites where suppression might be attempted. Only publicly owned sites would be part of this suppression project.



Fall 2012 - Spring 2013 Imidacloprid Treatments for Hemlock Woolly Adelgid in Maryland

		Trunk Injection	Trunk Injection	Soil Injection	Soil Injection	Total	Total
Hemlock Stand	**County**	**#Trees**	**Inches DBH***	**# Trees**	**Inches DBH***	**#Trees**	**Inches DBH***
Savage River SF (Big Run)	Garrett	280	2,687	324	3,037	604	5,724
Cunningham Falls SP	Frederick	39	336			39	336
Frederick Watershed	Frederick	231	1,712	1,055	5,901	1,286	7,613
Prettyboy Reservoir	Baltimore	82	778	243	2,649	325	3,427
Deep Creek Lake SP	Garrett			299	3,678	299	3,678
Swallow Falls SP**	Garrett			278	2,571	278	2,571
New Germany SP**	Garrett	760	8,619	7,980	85,631	8,740	94,250
Lostland Run	Garrett	25	232				
Hagerstown Watershed	Washington	340	2,825	237	1,911	577	4,736
Total		**1,757**	**17,189**	**10,416**	**105,378**	**12,148**	**122,335**

*DBH = the diameter of the tree trunk at 4.5 feet above the ground

**Treatments done by Forest Pest Management and Maryland Conservation Corps (Department of Natural Resources)

Southern Pine Beetle (SPB)

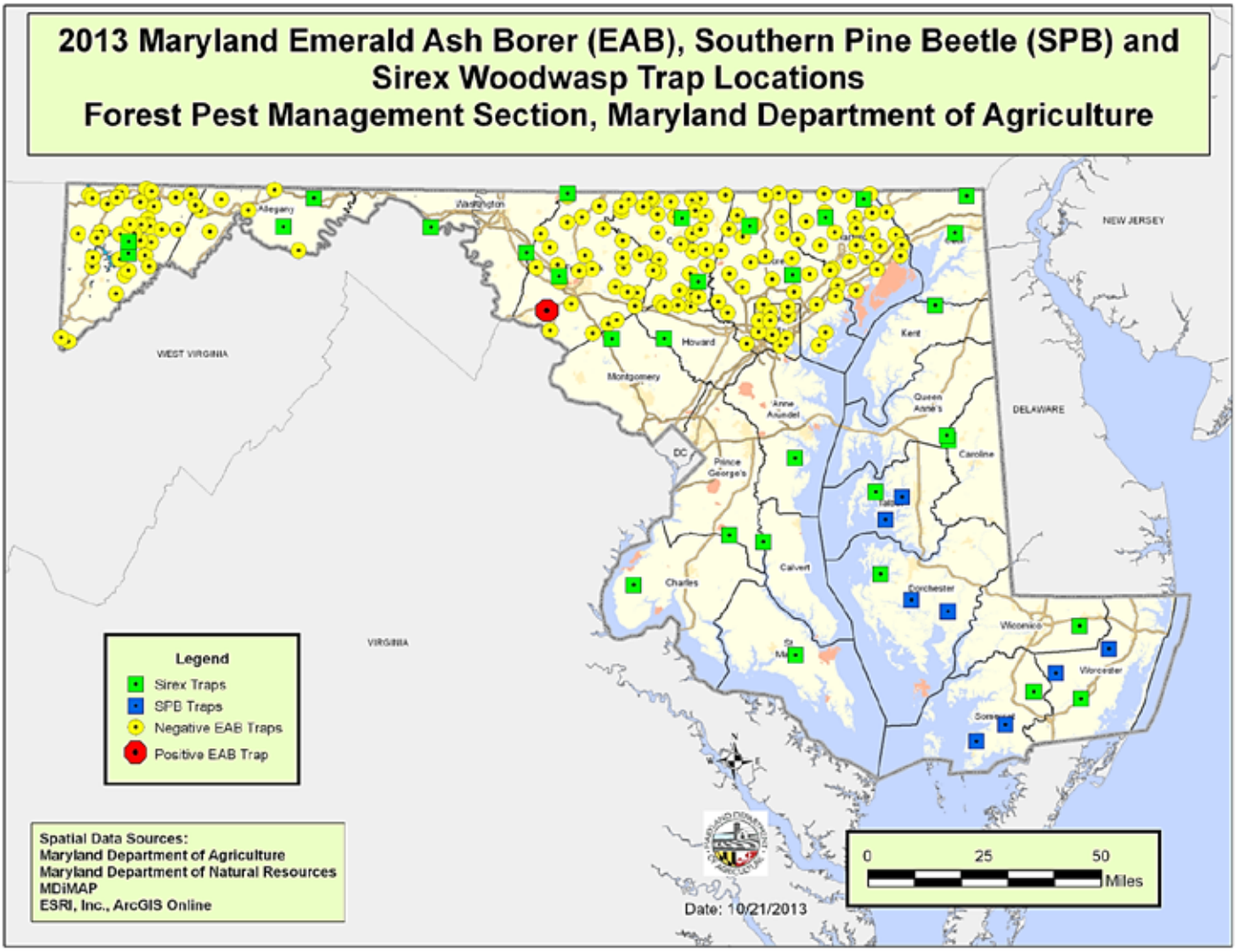
The SPB is one of the most destructive insect pests of pines. Maryland is at the northern edge of its range, and it is commonly found on the lower Eastern Shore and Southern Maryland. Since 1989, Maryland has participated in a multi-state SPB survey throughout the southern United States using pheromone-baited traps. Trap data indicated that SPB numbers would continue to remain low in 2013. Populations have been below outbreak level since 1994.

Sirex noctillio (Woodwasp)

Sirex woodwasp has been the most common species of exotic woodwasp detected at United States ports-of-entry associated with solid wood packing materials. Recent detections of Sirex outside port areas in the United States have raised concerns, because this insect has the potential to cause significant mortality of pines. The Sirex woodwasp has not been detected in Maryland but is known to be in Pennsylvania. MDA placed two traps per county on the northern tier counties and one trap in all other counties, for a total of 30 traps in pine woods. All traps were negative during FY 2013.

Emerald Ash Borer (EAB)

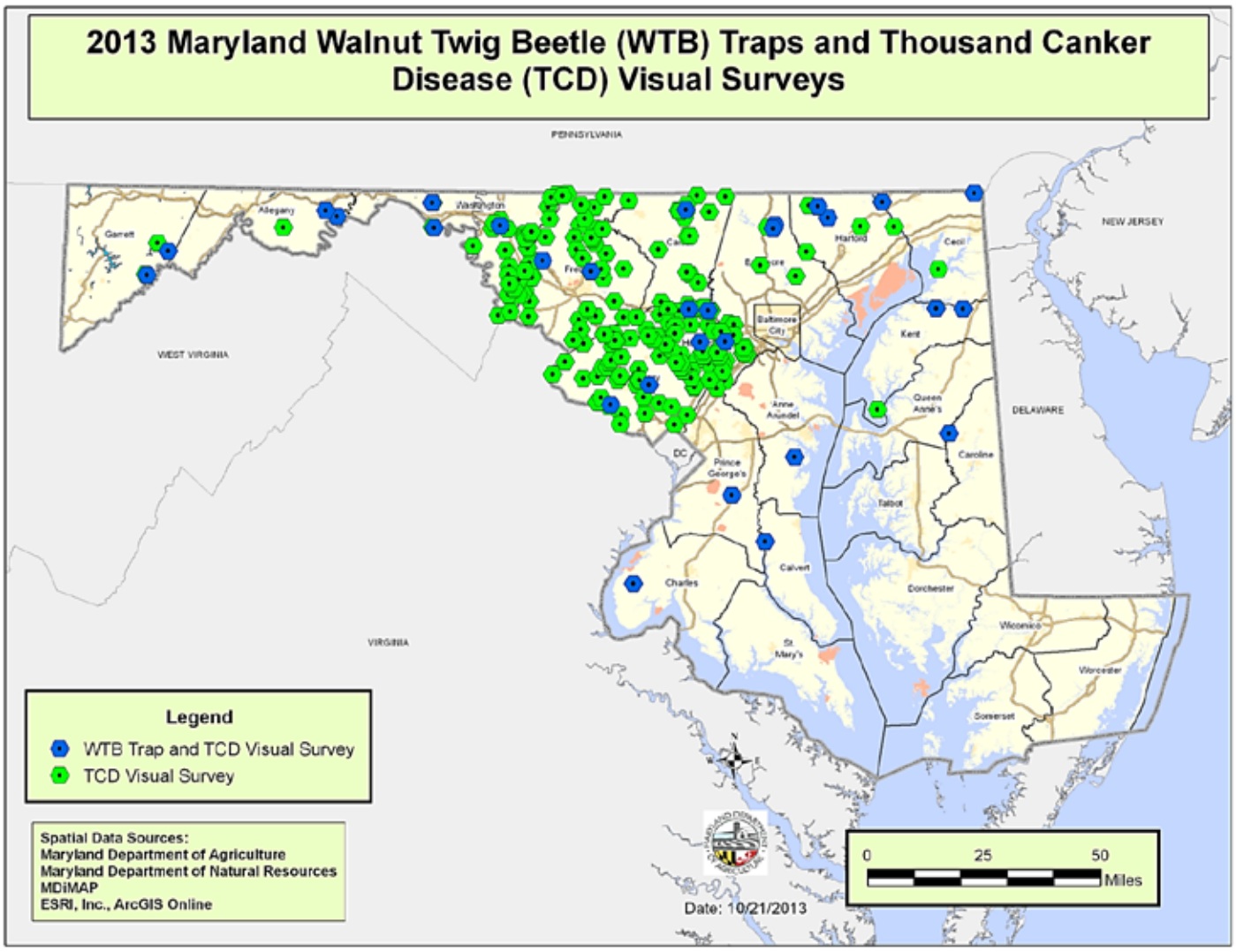
In conjunction with Maryland Department of Agriculture Plant Protection Section, Forest Pest Management put up 187 purple traps in the quarantined counties of Maryland that were not designated as being of special interest. Traps picked up a new EAB find in Frederick County.


2013 Maryland Emerald Ash Borer (EAB), Southern Pine Beetle (SPB) and Sirex Woodwasp Trap Locations
Forest Pest Management Section, Maryland Department of Agriculture
Legend
Sirex Traps
SPB Traps
Negative EAB Traps
Positive EAB Trap
Spatial Data Sources:
Maryland Department of Agriculture
Maryland Department of Natural Resources
MDiMAP
ESRI, Inc., ArcGIS Online
Date: 10/21/2013
0
25
50
Miles
WEST VIRGINIA
VIRGINIA
DELAWARE
NEW JERSEY
Allegany
Washington
Howard
Montgomery
Anne Arundel
Queen Anne's
Kent
Caroline
DC
Prince George's
Calvert
Charles
Dorchester
Wicomico
Worcester

Thousand Cankers Disease (TCD) and Walnut Twig Beetle (WTB)

Eastern black walnut planted in the western United States have experienced dieback and mortality. The WTB spreads the TCD. An infested tree usually dies within 3 years of showing symptoms. This beetle and disease had not been reported in the natural range of eastern black walnut until their discovery in Tennessee in 2010. Since then, the disease has been found in Pennsylvania, North Carolina, and Virginia.

Maryland and other mid-Atlantic States started surveying for this disease in 2011. So far, visual inspection has not detected the disease in Maryland. Statewide, 28 traps baited with a pheromone for the WTB have captured no WTB.

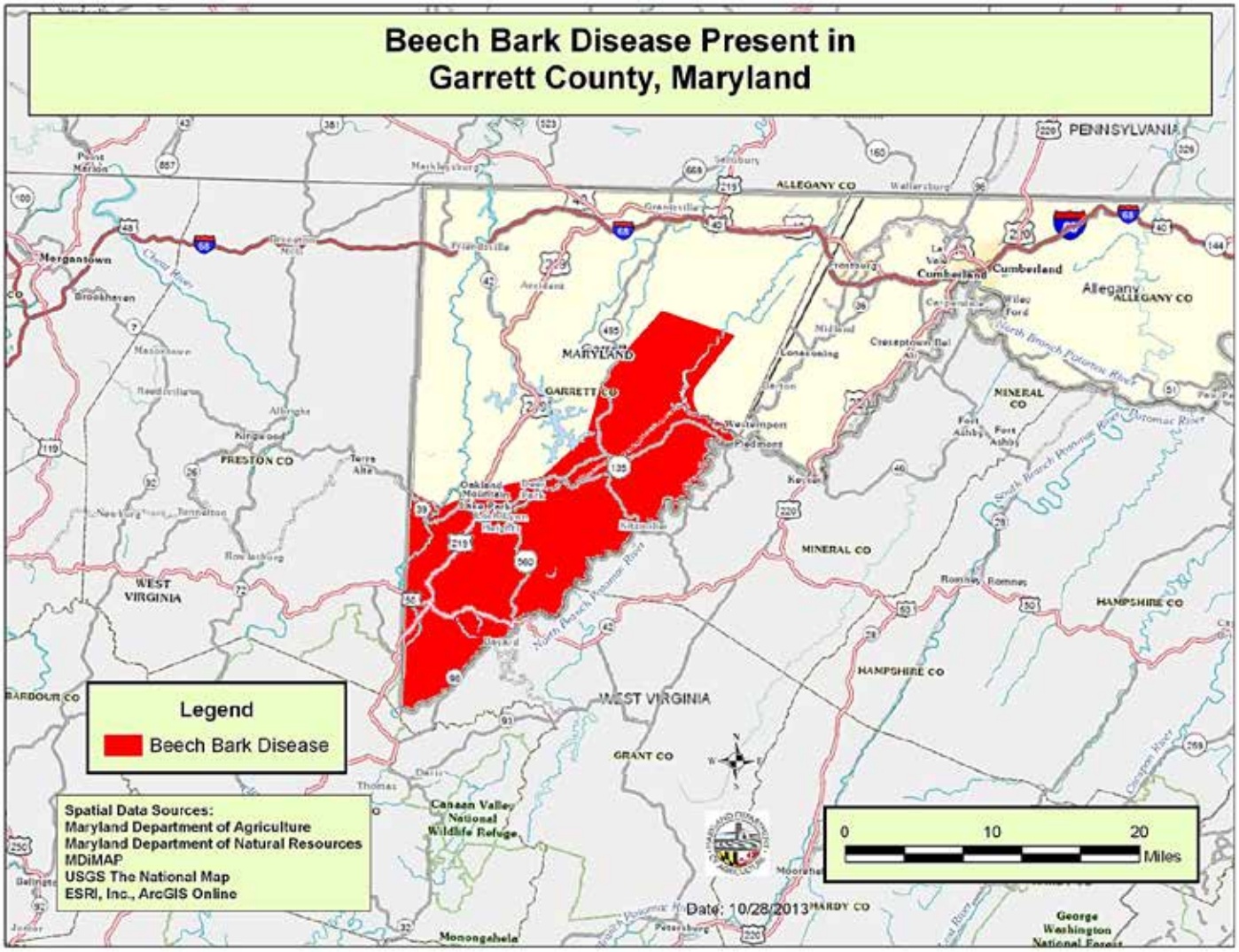


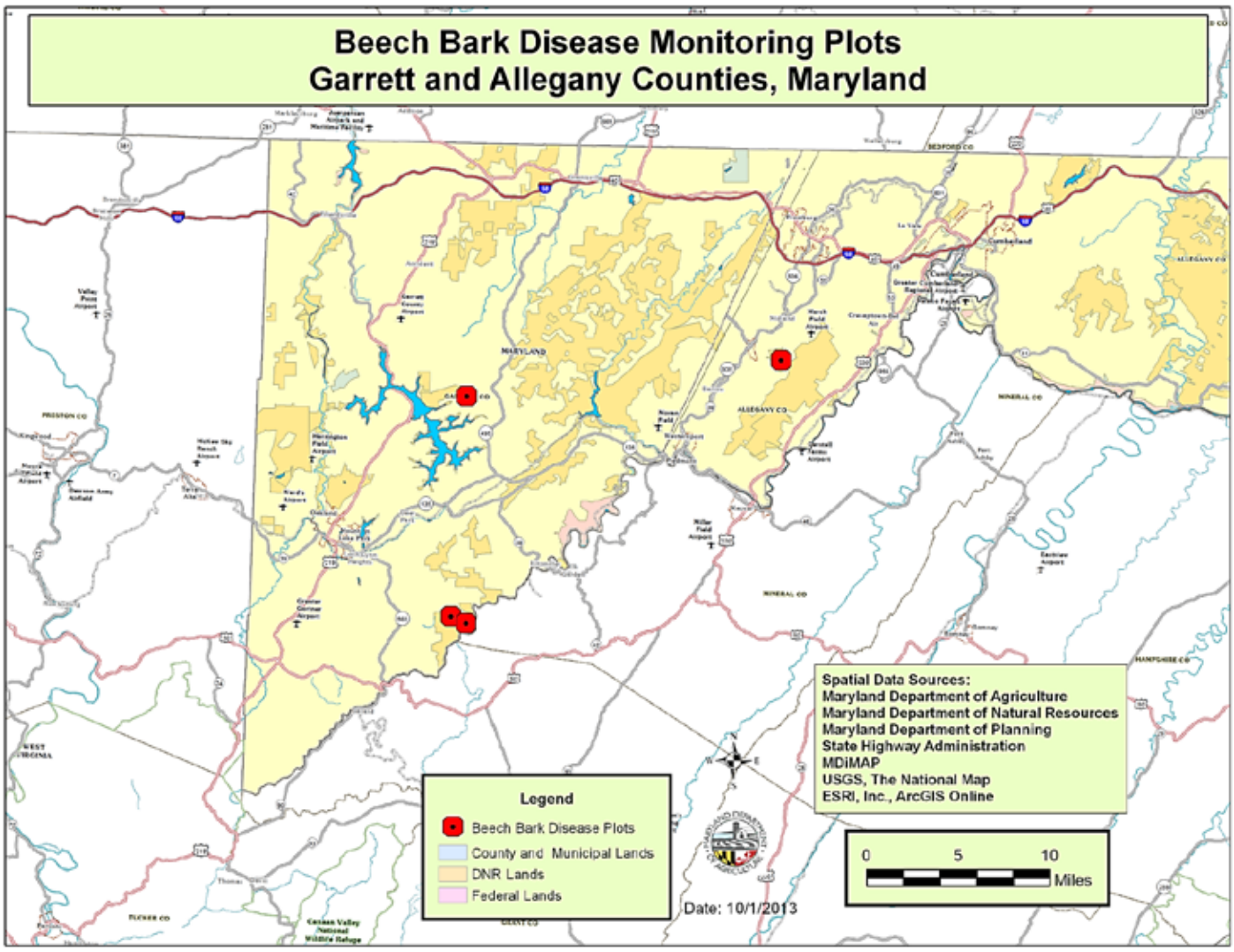
Baterial Leaf Scorch (BLS)

BLS was prevalent all through Maryland this year. Not only was it observed on ornamental trees but in forest areas throughout the State. BLS was less severe this year than last.

Beech Bark Disease (BBD)

BBD has been found only in Garrett County where 154,473 acres of forest are infested. In 2013 permanent monitoring sites were set up in Garrett and Allegany Counties.




Beech Bark Disease Monitoring Plots
Garrett and Allegany Counties, Maryland
Legend
Beech Bark Disease Plots
County and Municipal Lands
DNR Lands
Federal Lands
Spatial Data Sources:
Maryland Department of Agriculture
Maryland Department of Natural Resources
Maryland Department of Planning
State Highway Administration
MDiMAP
USGS, The National Map
ESRI, Inc., ArcGIS Online
0 5 10
Miles
Date: 10/1/2013

Acknowledgments

The aerial detection survey map was produced by the U.S. Forest Service, Forest Health Protection, in Morgantown, WV, using survey data from the Maryland Department of Agriculture, Forest Pest Management.

References

Land Cover Map:
U.S. Geological Survey. 2011. 2006 National land cover dataset. Sioux Falls, SD.

Forest Land Ownership, Forest Species Type:
U.S. Department of Agriculture, Forest Service. 2009. Forest resources of the United States, 2007. Gen. Tech. Rep. WO–78. Washington, DC. 336 p.

U.S. Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
11 Campus Blvd., Suite 200
Newtown Square, PA 19073
http://www.na.fs.fed.us

Forest Health Protection
Northeastern Area
State and Private Forestry
180 Canfield Street
Morgantown, WV 26505
304–285–1545

Maryland Department of Agriculture
Forest Pest Management
Wayne A. Crawley Jr. Building
50 Harry S. Truman Parkway
Annapolis, MD 21401-8960
410–841–5922
http://www.mda.state.md.us/plants-pests/index.php

January 2014

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